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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,848	06/02/2004	Chun-Yi Chou	12877-US-PA	3847
31561	7590	12/15/2006	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE			MOON, SEOKYUN	
7 FLOOR-1, NO. 100			ART UNIT	
ROOSEVELT ROAD, SECTION 2			PAPER NUMBER	
TAIPEI, 100			2629	
TAIWAN			DATE MAILED: 12/15/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/709,848		CHOU, CHUN-YI	
	Examiner		Art Unit	
	Seokyun Moon		2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. The Applicants' claim for the benefit of a prior-filed application under 35 U.S.C. 119(a)-(d) has been acknowledged.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-46** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention.

The aspects of the invention disclosed in the claims, "*enhanced clock signal*", "*enhanced display data*", and "*enhanced control signal*" render the claim indefinite since the claim limitation "*enhanced*" can be interpreted in many ways such as "synchronized" and "amplified", and the Applicants have failed to explain and describe it in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects

for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 8, 12, 13, and 20** are rejected under 35 U.S.C. 102(e) as being anticipated by Kumagai et al. (US 2003/0218588, herein after "*Kumagai*").

As to **claim 1**, Kumagai teaches a source driver ("*data driver IC 17*") [fig. 2] receiving a clock signal ("*CLK IN*") [fig. 3], a display data ("*DATA IN*"), and a control signal ("*START IN*") to drive a display panel, comprising:

a receiver (a combination of "*input buffer 120*", "*input buffer 121*", "*input buffer 122*", and "*input buffer 123*") [fig. 3] for receiving the clock signal, the display data, and the control signal; and

a transmitter (a combination of "*counter 124*", "*clock control circuit 125*", "*data control circuit 126*", "*latch circuit 127*", "*inverter 132*", and "*output buffers 128, 129, 130, and 131*") [fig. 3] coupled to the receiver for enhancing a driving ability of the clock signal, the display data, and the control signal, and outputting the enhanced clock signal, the enhanced display data, and the enhanced control signal for use of another source driver in a next stage [pars. (0052), (0053), and (0054)].

As to **claim 8**, Kumagai teaches the transmitter including:

a data synchronization circuit (a combination of "*counter 124*", "*clock control circuit 125*", "*inverter 132*", "*data control circuit 126*", and "*latch circuit 127*") [fig. 3] synchronizing the clock signal, the display data, and the control signal received from the receiver [pars. (0103) and (0105)]; and

a plurality of buffers ("*output buffers 128, 129, 130, and 131*"), coupled to the data synchronization circuit, receiving the synchronized clock signal, the synchronized display data, and the synchronized control signal, enhancing the driving ability of the synchronized clock signal, the synchronized display data, and the synchronized control signal, and outputting the

Art Unit: 2629

enhanced clock signal, the enhanced display data, and the enhanced control signal for use of the another source driver in the next stage [par. (0052)].

As to **claim 12**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for a display panel, a timing controller and a plurality of source drivers being series-connected.

Kumagai teaches a flat panel display, comprising:

a display panel [fig. 2];

a timing controller ("*control circuit 11*") [figs. 2 and 3] outputting a clock signal, a display data, and a control signal; and

a plurality of source drivers, the plurality of source drivers being series-connected to be a series structure, the plurality of source drivers being coupled to the display panel, one end of the series structure being coupled to the timing controller [fig. 2].

As to **claim 13**, all of the claim limitations have already been discussed with respect to the rejection of claim 1.

As to **claim 20**, all of the claim limitations have already been discussed with respect to the rejection of claim 8.

6. **Claims 10, 11, 22, and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai.

As to **claim 11**, Kumagai does not expressly disclose the display panel being a low temperature poly-silicon liquid crystal display panel.

However, Examiner takes official notice that it is well known in the art to use a low temperature poly-silicon liquid crystal display as a display panel for a liquid crystal display.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kumagai's display panel to be a lower temperature poly-silicon liquid crystal

Art Unit: 2629

display panel since such low temperature poly-silicon liquid crystal display is well known for being used on small sized display panels of portable electronic equipments.

As to **claim 10**, Kumagai does not expressly disclose the display panel being a α -si liquid crystal display panel.

However, since the Applicants have failed to disclose that specifying the type of the display panel to be a α -si liquid crystal display panel provide an advantage, is used for particular purpose, or solves any state problem, it is obvious matter of design choice to specify the display panel to be a α -si liquid crystal display panel.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of a low temperature poly-silicon liquid crystal display panel and a α -si liquid crystal display panel as a display panel since any one of the display panels would perform equally well at display images received from the sources drivers with enhanced driving ability.

As to **claim 22**, all of the claim limitations have already been discussed with respect to the rejection of claim 10.

As to **claim 23**, all of the claim limitations have already been discussed with respect to the rejection of claim 11.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 2-7 and 14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai in view of You (US 2004/0104903).

As to **claims 2-4**, Kumagai does not teach the transmitter being a differential signal transmitter.

However, You [figs. 1, 2, and 3] teaches a display device comprising a plurality of data circuits ("*data TCP 500*") and adopting a differential transmission to transfer image data from a voltage mode differential signal transmitter to a voltage mode differential signal receiver included in the data circuit [abstract].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kumagai's source drivers to use differential transmission for transferring data, by including a voltage mode differential signal transmitter and a voltage mode differential signal receiver, as taught by You, in order to reduce electromagnetic interference affecting on data transmission [par. (0006)].

As to **claims 5-7**, Kumagai does not teach the transmitter being a current mode differential signal transmitter or a TTL signal transmitter and the receiver being a TTL signal receiver.

However, since the Applicants have failed to disclose that specifying the type of the transmitter to be a current mode signal transmitter or a TTL signal transmitter and specifying the type of the receiver to be a TTL signal receiver provide an advantage, is used for particular purpose, or solves a state problem, it is obvious matter of design choice to specify the types of the transmitter and the receiver in such ways.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any one of a voltage mode signal transmitter, a current mode signal transmitter, or a TTL signal transmitter as the transmitter and to use any one of a voltage mode signal receiver, a current mode signal receiver, or a TTL signal receiver as the receiver, since any one

of the listed transmitters and the listed receivers would perform equally well at enhancing the driving ability of the transferred signals.

As to **claim 14**, all of the claim limitations have already been discussed with respect to the rejection of claim 2.

As to **claim 15**, all of the claim limitations have already been discussed with respect to the rejection of claim 3.

As to **claim 16**, all of the claim limitations have already been discussed with respect to the rejection of claim 4.

As to **claim 17**, all of the claim limitations have already been discussed with respect to the rejection of claim 5.

As to **claim 18**, all of the claim limitations have already been discussed with respect to the rejection of claim 6.

As to **claim 19**, all of the claim limitations have already been discussed with respect to the rejection of claim 7.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Akahori (US 2005/0012705) teaches a display device preventing timing misalignment between signals of clock, data, and start pulses to be supplied to driver ICs.

Sakuma et al. (US 2003/0001808) teaches a liquid crystal display comprising a plurality of source driver ICs, wherein each source driver delays the start timing for writing liquid crystal cells among the plurality of source driver ICs.

Orisaka et al. (US 6,459,417) teaches a display driving device including a plurality of source drivers connected in series.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 8, 2006

S.M.

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

